Nothris melanchlora Meyrick, Exotic Microlepidoptera **3**: 496. 1929. (New synonymy.)

Type localities.—"Texas" (?) (*bianulella*); Fort Davis, Tex., 5,000 feet (*melanchlora*).

Remarks.—The two agree in every respect, including genitalia, and must be considered synonymous. The shape of the tuft of second segment of palpus, on which Chambers based his genus *Oesis*, led Meyrick to describe this and other species of *Gelechia* in *Nothris*. As pointed out by Busck, the genitalia of the latter genus are of an entirely different type.

Gelechia mundata (Meyrick), n. comb.

Nothris mundata Meyrick, Exotic Microlepidoptera **3**: 495. 1929.

Type locality.—Mescalero, N. Mex., 7,000 feet.

Remarks.—This species is very close to *gracula* and may even be a form of it, but more material from the type locality will be necessary to determine that point.

Gelechia thymiata (Meyrick), n. comb.

Nothris thymiata Meyrick, Exotic Microlepidoptera **3**: 497. 1929.

Type locality.—Nogales, Ariz.

Remarks.—This, like the three foregoing species, clearly belongs in *Gelechia* and, on the structure of palpus, is allied to the *bianulella-monella* group of the genus.

ENTOMOLOGY.—*Two new species of mosquitoes from the Yemen (Diptera: Culicidae).*[1] KENNETH L. KNIGHT, U. S. Naval Medical Research Unit No. 3, Cairo, Egypt.[2]

This paper describes the new species occurring in a collection of mosquitoes made by the author while a member of a medical survey team to the Yemen from U. S. Naval Medical Research Unit No. 3. A complete account of this collection is being prepared for a subsequent paper. The larval chaetotaxal nomenclature used in this paper is that of Belkin (1950).

Culex (Culex) mattinglyi, n. sp.

1941. *Culex (Culex) laticinctus* Edwards. Edwards, Mosq. Ethiopian Region **3**: 313. The record from San'a, Yemen (Scott and Britton).

Adult.—A brown species of medium size with sparsely haired male palpi and broad straight pale basal bands on the tergites.

MALE: Wing length approximately 4.5–5.0 mm. *Head:* Proboscis dark. Palpus approximately equal to proboscis in length; dark, a variable amount of pale scaling laterally along apical portion of III and baso-ventrally on IV and V; very sparsely-haired, most of those present being confined to IV; IV and V not markedly uptilted. Vertex with narrow white scales dorsally and broad white scales laterally, upright-forked scales pale brownish. *Thorax:* Scutum with brownish-golden narrow scales, the scales paler in color along the scutal margins and on the prescutellar space. Scutellar scales narrow, pale. *Apn* and *ppn* with some white scales present, usually both broad and narrow. Each of the following pleural areas with a patch of broadened whitish scales: propleural, dorsal sternopleural, medio-posterior sternopleural, dorsal mesepimeral (confluent with hair tuft), and medial mesepimeral. A single lower mesepimeral bristle present (two on one side of each of two specimens). *Legs*: Coxae each with an anterior patch of white scales. Fore and mid femora anteriorly dark except for an apical line of yellowish scales; hind femur with basal half pale except for the dorsal margin and apically, apex with a line of pale scales. Tibiae anteriorly dark except for apical pale patches. Tarsi dark. Fore and mid tarsal claws unequal, each unidentate; hind equal, simple (from slide mount). *Wings:* Dark-scaled. Halter knobs at least partially pale. *Abdomen:* Tergites III-VII with broad straight basal whitish bands. Sternites pale-scaled, scattered dark scaling may be present. *Genitalia* (Fig. 1a, b): Basistyle distinctly swollen; tergal surface bearing a dense covering of short and long setae, outer and sternal surface bearing the usual elongate setae; appendage *a* (terminology of Edwards, 1941: 280 and fig. 103a) markedly proximal to appendages

[1] The opinions or conclusions contained herein are those of the author and are not to be construed as official or reflecting the views of the Navy Department or of the Naval Service at large.

[2] Now officer-in-charge, U. S. Navy Preventive Medicine Unit No. 1, Naval Air Station, Jacksonville, Fla.

b and *c* and strongly bent medially, appendage *c* distinctly shorter than *b*, appendages *d*, *e*, and *f* absent (possibly represented by three short setae near base of *b* and *c*), leaflet (*g*) and appendage *h* present. Dististyle extremely broadened, with a distinctive recurved portion near apex. Paraproct with an elongate curved basal arm. Phallosome relatively simple in structure.

Female: Wing length approximately 6.0 mm. Differing from the male as follows: Palpi approximately one-sixth to one-fifth length of proboscis, dark. Some pale scaling present basally on

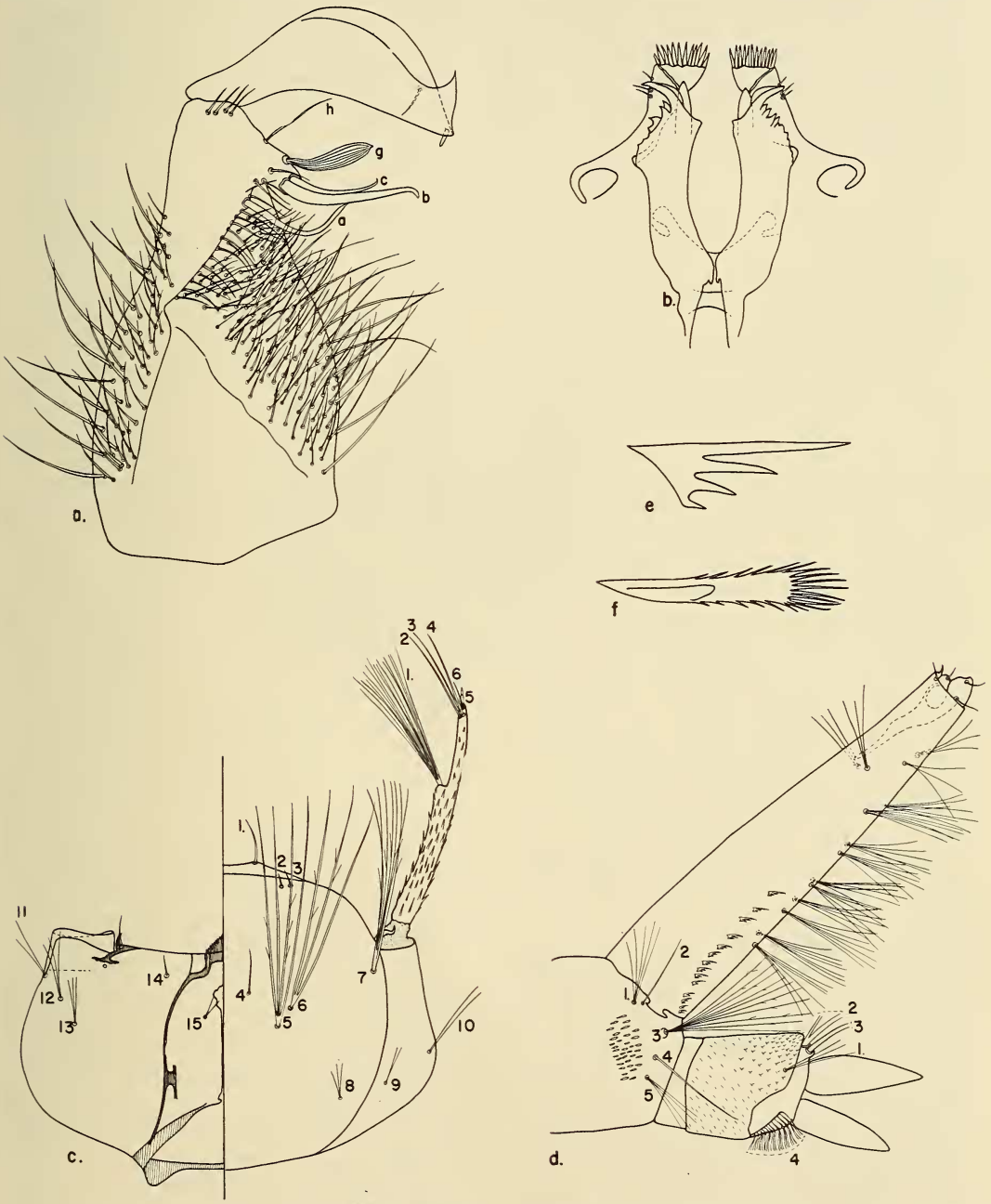

Fig. 1.—*Culex* (*Culex*) *mattinglyi*. Male genitalia: *a*, Mesal spect of right basistyle; *b*, sternal aspect of mesosome and paraprocts. Larva: *c*, Head, *d*, terminal segments; *e*, pecten tooth; *f*, comb scale.

costa. Upper fork cell approximately 3.8–4.3 times longer than its stem. Tarsal claws equal, simple (from slide mount).

Larva (described from 10 skins, representing five separate collections).—*Antenna:* Shaft rather evenly pigmented throughout, densely spiculate from base to level of hair tuft, slenderer and nearly smooth from there to apex. Antennal hair tuft (hair 1) inserted slightly distad of the middle (0.56–0.64 from base), with numerous elongate frayed branches, hairs 2 and 3 distinctly subapical and extending anteriorly slightly further than hair 4. *Head* (Fig. 1c): Clypeal spines single, long, slender; hair 4 single; 5 with 3–7 branches; 6 with 3–6; 7 with 6–9; 8 with 2–4; 9 with 2–6; 10 with 2–5; 11 with 2–5; 12 with 2–3; 13 with 2–4; 14 single; 15 with 2–4. Mentum with 10–12 teeth on each side of median tooth. *Thorax:* Integument with distinct spiculation. *Abdomen, I-VII*: Hair 6 of I with 2–5 branches, hair 7 with 2–3. Hair 6 of II, III, and IV with 2–5 branches, of V and VI with 2–3. *Abdomen, VIII* (fig. 1d, e, f): Hair 1 with 5–7 branches, hairs 2 and 4 single, hair 3 with 9–14, hair 5 with 4–5. Comb consisting of a patch of 34–44 scales, each scale with an evenly-expanding lateral and apical fringe. *Siphon:* Pale; index 3.4–4.5; acus present; 11–16 more or less paired multiply-branched elongate hair tufts present, all latero-ventral except the subapical pair which is lateral, several of the tufts inserted basad of pecten apex; pecten composed of a line of 14–19 teeth, each tooth with 1–3 baso-ventral denticles. *Anal Segment:* Anal plate complete; hair 1 (*lh*) with 2–3 branches; hair 2 (*isc*) with 2–3 branches (once single); hair 3 (*osc*) single; hair 4 (ventral brush) with 12 tufts (twice with 13), each tuft arising from the barred area. Anal gills elongate, subacutely tapered, the dorsal pair 1.2–1.5 the length of the anal plate and 1.0–1.3 the length of the ventral pair.

Types.—Holotype: Male (coll. no. 330), genitalia mounted on a slide, U.S.N.M. no. *61658*, Birket Shiekh Kunnaf, San'a, Yemen, February 13, 1951, elevation 7100 feet, collected as a pupa from a cement animal-watering trough by a well just outside the city walls. *Paratypes:* Five males, 18 females, 1 set associated skins, same data as for holotype (coll. no. 330); 3 females, 1 set associated skins, Wadi Dhahr, 8 miles northwest of San'a, Yemen, February 13, 1951, elevation 7,000 feet, collected as larvae and pupae from a broad open well in which the water level was 15 feet below the surface (coll. no. 331); 18 larval skins (10 slides), 1 set associated skins, Wadi Dhahr, February 11, 1951, collected as larvae from a large cement basin (coll. no. 328); 1 larval skin, Rouda, 3 miles north of San'a, February 15, 1951, elevation 7100 feet, collected from a large cement tank (coll. no. 333).

The holotype and a portion of the paratypes are deposited in the U. S. National Museum. The remainder of the paratypes are in the collections of the British Museum (Natural History) and of the author.

Discussion.—According to the classification of Edwards (1941: 282), this species is a member of the *pipiens* series of Group B (*pipiens* group). Based on both adult and larval characters, it is most closely related to *Culex laticinctus* Edwards. In the adult stage *laticinctus* differs mainly in possessing two or more mesepimeral bristles and in many details of the male genitalia. Two specimens of the new species possess two lower mesepimeral bristles on one side but none were observed with this number occurring on both sides. The larva of *laticinctus* differs from that of the new species in that the antenna is not uniformly colored, the mentum has only 7–8 lateral teeth on a side, the dorsal surface of the siphon is straight from near the base when seen in lateral view, the pecten teeth are of quite a different form; the upper caudal seta (hair 2 or *isc*) has four or more branches, the anal gills are shorter than the anal plate, and the ventral brush usually has 14 hair tufts.

Since the only specimens of *laticinctus* collected by me in the Yemen were from Ta'izz, a locality which lies at the much lower elevation of 4,100 feet, it seemed quite reasonable to assume that the record of *laticinctus* from San'a given by Edwards (1941: 314) actually refers to this species. Upon request Mr. Mattingly of the British Museum kindly checked these specimens and found them indeed to be *mattinglyi*.

In Edwards's (1941: 284) key to the Ethiopian species of the subgenus *Culex*, this species goes to *ninagongoensis* Edwards and *calurus* Edwards (couplet 35). However, it differs markedly from them on the basis of male genitalia. Also, the larva of *ninagongoensis* is strikingly different in that the comb is entirely composed of spines. The larva of *calurus* is unknown.

In the larval key of Hopkins (1952: 246) this species will not completely pass the second bracket in that, like *C.* (*Neoculex*) *stellatus* van

Someren, it has the thoracic integument rather densely spiculated.

It is believed that the unusual development of the dististyle alone adequately distinguishes this new species from all other known Ethiopian *Culex*.

This species is dedicated to P. F. Mattingly, Department of Entomology, British Museum (Natural History), who has contributed so much to the modern taxonomy of mosquitoes and who has so generously and unceasingly made available his time for the help of others.

Culex (Neoculex) jenkinsi, n. sp.

Adult.—A rather small species with sparsely haired male palpi, pale yellowish scutal scales, postspiracular and prealar scales, and apical pale abdominal bands.

Male: Wing length approximately 3.5 mm. *Head:* Proboscis dark, apical portion darker than the remainder. Palpus longer than the proboscis by nearly the length of segment V; dark; a few short hairs arising apically on III, along IV, and basally on V. Vertex with narrow white scales dorsally and broad white scales laterally; up-

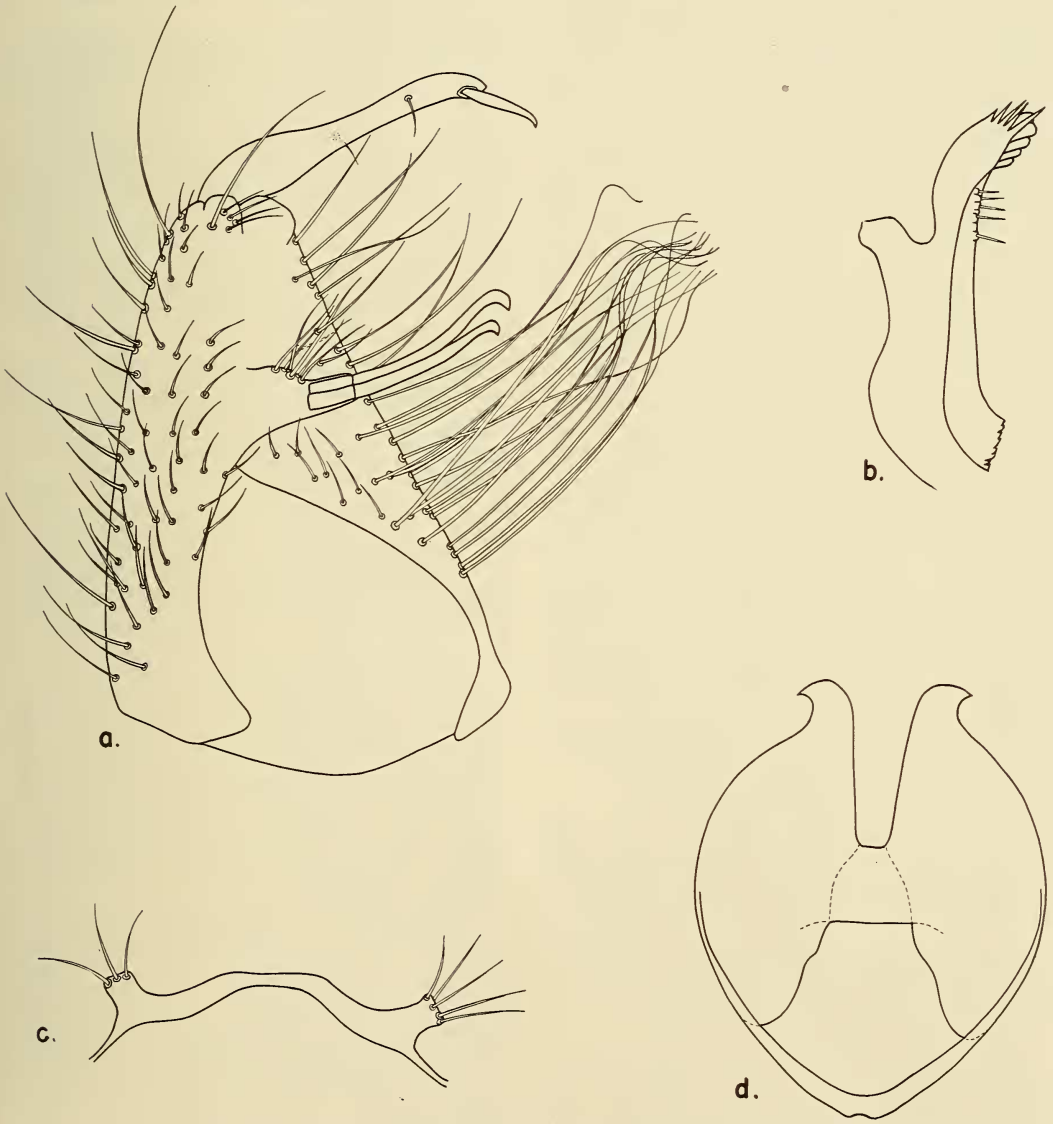

Fig. 2.—*Culex (Neoculex) jenkinsi.* Male genitalia: *a*, Mesal aspect of right basistyle; *b*, lateral aspect of paraproct; *c*, ninth tergite; *d*, sternal aspect of mesosome.

right-forked scales pale brownish in color, somewhat darker laterally. *Thorax:* Scutum with pale yellowish narrow scales, the scales paler in color around the margins and on the prescutellar space. Scutellar scales narrow, pale. *Apn* with a few broadened pale scales; *ppn* usually with some narrow white scales. Pleural integument brownish, without obvious markings. Each of the following pleural areas with a patch of broadened whitish scales: propleural (very few), postspiracular (very few), prealar knob (very few, on lower portion of knob), dorsal sternopleural, mediosternopleural, dorsal mesepimeral (confluent with hair tuft), and medial mesepimeral. Prosternum without scales. One lower mesepimeral bristle present (one specimen with two bristles present on either side). *Legs:* Coxae each with an anterior patch of white scales. Fore and mid femora anteriorly dark except for an apical line of pale scales; hind femur pale, a dorsal dark line from near base that apically widens across the anterior surface, an apical line of pale scales. Tibiae dark except for apices. Tarsi dark. Fore and mid tarsal claws unequal, each unidentate; hind equal, simple (from slide mount). *Wings:* Dark-scaled. Upper fork cell approximately 2.2–2.5 times longer than its stem. Cross veins separated by somewhat more than twice the length of posterior one. *Abdomen:* Tergites II-VII with distinct apical pale bands. Sternites pale-scaled, baso-lateral dark scaling usually present on the more apical segments. *Genitalia* (fig. 2): Tergal surface of basistyle bearing a distinctive clump of long apically-twisted setae; subapical lobe with two stout rods (probably *a* and *b*) and about 5–6 short setae. Dististyle enlarged basally. Paraprocts with a subapical lobe. Phallosome with lateral plates smooth. Lateral lobes of ninth tergite prominent, each bearing from 3–7 prominent setae; no prominent median lobe.

Female: Wing length approximately 3.9–4.4 mm. Differing from the male as follows: Palpi approximately one-fourth the length of the proboscis, dark. Torus and first flagellar segments with white scales. Propleural and postspiracular areas with more scales than in male. Upper fork cell approximately 2.8 times longer than its stem. Tarsal claws equal, simple (slide mount).

Larva.—Not known.

Types: Holotype. Male (coll. no. 308), genitalia mounted on a slide, U.S.N.M. no. *61659*, El-Hauban, Wadi el-Malah, about 3 miles east of Ta'izz, Yemen, January 16, 1951, elevation about 3,700 feet, collected as larvae from emergent vegetation in the quiet marginal water of a drying wadi stream. *Paratypes:* Two males, 5 females, same data as for holotype (coll. no. 308); 1 male, 1 female, Wadi Mal el-Ghail, about 14 miles west of Ma'bar, Yemen, February 7, 1951, elevation about 6,500 feet, collected as larvae from pools along small stream flowing from mountain spring (filamentous green algae present) (coll. no. 325).

The holotype and a portion of the paratypes are deposited in the U. S. National Museum. The remainder of the paratypes are in the collections of the British Museum (Natural History) and of the author.

Discussion.—Based on the classification of Edwards (1941: 249), this new species is a member of Group B (*Neoculex* s. str.). In the Ethiopian region Group B includes the following species: *peringueyi* Edwards, *seyrigi* Edwards, *salisburiensis* Theobald, *andreanus* Edwards, *kingianus* Edwards, *kilara* Van Someren, and *rubinotus* Theobald. *Culex coursi* Doucet, 1949, described from the larva from Madagascar, may belong here since the larva resembles that of *salisburiensis*.

In Edwards's key (1941: 253) to the Ethiopian species of *Neoculex*, this species keys to *seyrigi* (female unknown). The adult is similar to the description of *seyrigi* by Edwards (1941: 256) except that the scales of *ppn* are mostly narrow, no mention is made of the dorsal mesepimeral patch, and all of the tibiae have pale apices. The male genitalia differ in having the dististyle humped sub-basally instead of straight and tapering, the two bristles on the dististyle are not as near to one another as shown by Edwards (1941: fig. 82b), the ninth tergite is not as strongly lobed medially and the lateral lobes have 3–7 bristles each instead of 8–10, and the tips of the lateral plates of the mesosome are not tuberculate.

The larva of *seyrigi* is unknown but possibly *coursi* Doucet (Madagascar) is the larva of this species (Hopkins, 1952: 253). *C. seyrigi* is known only from Madagascar.

Although distinct, this species shows a close relationship to published descriptions of Mediterranean material of *Culex* (*Neoculex*) *apicalis* Adams. A re-evaluation of European *apicalis* has been made by P. F. Mattingly and is to be published soon. The exact relationships of the new species described here will be elaborated in that paper.

This species is dedicated to Dr. Dale W. Jen-

kins, Medical Division, Army Chemical Center, Maryland, who has contributed so materially to our knowledge of medically important insects.

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ENTOMOLOGY.—*Recent advances in the taxonomy and distribution of* Grylloblatta (*Orthoptera: Grylloblattidae*).

Ashley B. Gurney,[1] U. S. Bureau of Entomology and Plant Quarantine.

This paper summarizes the important developments regarding the genus *Grylloblatta* which have come to my attention during the past five years. In 1948 I brought together the principal taxonomic and distributional data on these unusual insects (Gurney, 1948) and it is a tribute to the zeal of numerous diligent collectors that several extensions of the generic distribution have recently been made, and at least two new species have been found. Best of all, both sexes of the two new species here described are known, and the great importance of the male terminalia as specific characters is now evident. The contents of the alimentary canal have been removed from specimens of three species (*rothi*, *bifratrilecta*, *sculleni*), and notes on the results of the examination appear in the discussion of those species. Annotations are included on several important papers which have appeared since my 1948 catalogue was written. Special interest is attached to a related new genus from Siberia described by Bei-Bienko (1951), whose paper has been translated by Miss Ruth Ericson, of the Bureau of Entomology and Plant Quarantine.

[1] The cooperation of the following persons, who have assisted by making specimens and notes available, is gratefully acknowledged: Henry K. Townes, North Carolina State College; Vincent D. Roth, Oregon State College; J. W. MacSwain, E. G. Linsley, and Paul D. Hurd, Jr., University of California (Berkeley); E. Philip Pister, U. S. Fish and Wildlife Service, Berkeley, Calif.; Harry P. Chandler, California Division of Fish and Game; John A. Chapman, Montana State University; and W. L. Nutting, Harvard University. Thanks are also given to the following University of California students who made a special and highly successful attempt to find *Grylloblatta* at Sonora Pass, Calif., while engaged in summer field activities with Dr. MacSwain: O. R. Ali, C. A. Downing, J. J. Drea, S. M. Kappos, S. Katana, J. L. Mallars, and B. Puttler. For several days these men worked very hard at a task which was difficult and sometimes dangerous, and as a result the specimens of *bifratrilecta* are more numerous and complete than the original series of any previously described species of Grylloblattidae.

KEY TO SPECIES OF GRYLLOBLATTA

1. Dorsal valve of ovipositor reaching to middle of cercus, or at least to apical half of fifth segment; antenna of adult composed of 36 segments or less, of nymph not over 30 . . . 2
   Dorsal valve of ovipositor not reaching to middle of cercus, or beyond base of fifth segment; antenna of adult often composed of 39 or more segments, of nearly mature nymph usually more than 30 (northern California, Oregon) . . . 5
2. Apical half of male supra-anal plate symmetrical or nearly so (Fig. 3) (Washington to Montana and northward) . . . 3
   Apical half of male supra-anal plate asymmetrical (Figs. 4, 5) (Oregon, California) . . . 4
3. Stylus of male about three times as long as wide (Fig. 8); antenna of adult with an average of less than 30 segments (Alberta, British Columbia, Montana)
   campodeiformis campodeiformis Walker
   Stylus of male about four times as long as wide (Fig. 8a); antenna of adult with an average of more than 30 segments (Washington, British Columbia)
   campodeiformis occidentalis Silvestri
4. Stylus of male attached laterally (Fig. 6); male supra-anal plate with left apical corner conspicuously developed, lobelike (Fig. 5); segments of cerci comparatively short (Figs. 14, 16) (Oregon) . . . *rothi*, n. sp.
   Stylus of male attached basally (Fig. 7); male supra-anal plate with left apical corner angular rather than lobelike (Fig. 4); segments of cerci comparatively elongate and slender, especially the more apical ones (Fig. 15) (California) . . . *bifratrilecta*, n. sp.
5. (Adult unknown), antenna of nymph composed of 36–40 segments; compound eye prominent, proportion of greatest length of eye to width